



What's new in ICT in popular culture and education?



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Moderation Day
4 March 2014

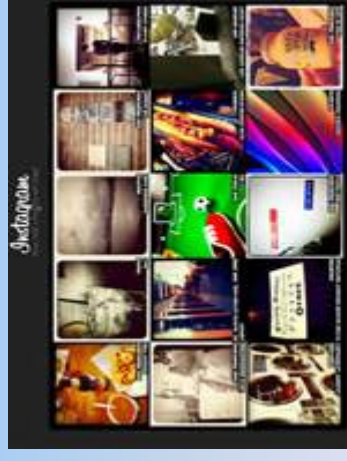
Tech trends

- Mobile devices surging ahead of PC use
- Phablet sales increasing more than tablets
- Explosion of employee smartphones at work - security threats
- Privacy – a big issue for public sector agencies (following Edward Snowden fallout)
- 4K TV will become mainstream
- State of broadband in Australia rather poor – wireless is the way forward



The visual web

- Visual data now dominates the once text-based web – selfies, pins, memes, video & other picture formats
- Pinterest, Tumblr & Instagram = the youngest, hippest audience coveted by marketers
- The visual web is billion dollar trend but apps and image-centred networks will need to keep improving
- True visual search is very difficult – how is an image represented & how can it be searched & located?



Big data

- A collection of data sets so large and complex that it is difficult to process using traditional applications
- Big data exists in many fields -
 - Big data used in chart *Vaccine preventable outbreaks* around the world 2006-2014 – a compelling argument against anti-vaccination movement.



- Big data exists in many fields - meteorology, physics, biology, environment, business...
- Data sets grow with the use of remote sensing, software logs, cameras, microphones etc
- Examples – Large Hadron Collider, human genome, eBay, Amazon. Walmart, Facebook photos

<http://www.forbes.com/sites/danmunro/2014/01/23/big-data-crushes-anti-vaccination-movement/>

Bitcoin

- Open source peer-to-peer payment system & digital currency introduced by Satoshi Nakamoto in 2009
- No central authority or banks; low fees
- 1 BTC = \$AU627 (26/2/14)
- Price of bitcoin has dropped since Dec 2013 and hackers regularly steal bitcoins
- 1 Mar 2014: Bitcoin in crisis as its busiest exchange Mt Gox files for bankruptcy after \$US500 million lost to hacking



Happy 10th birthday Facebook!

- Launched 4 Feb 2004
- 1.23 billion active monthly users
- 80% reside outside North America
- Biggest audience growth now coming from ages 65+ (45% use FB)
- Still used by 84% of 18-29 year olds (slight drop)
- Profit of \$1.7 billion last quarter (8-fold increase)

<http://www.smh.com.au/digital-life/digital-life-news/facebook-is-10-and-old-already-20140131-31s4h.html>

- Princeton Uni prediction – 80% of users will desert FB by 2017!
- Apps becoming more important to young people eg. Twitter, Snapchat, Instagram, WhatsApp
- A full-service social network isn't really needed any more
- FB is trying hard to pervade everything – you need a FB account to use many services (eg. PS4).
- FB purchased WhatsApp for \$19 billion – now they have access to users' phone numbers, address books, payment info etc





MOOCs – 10 million enrolments globally

- ANU MOOCs – via edX (Harvard & MIT)
- 15 000 students from 88 countries enrolled for March 2014
- US & India = half of enrolments.; Aust. = 2%
- 3 courses – Astrophysics 1 & 2 (Brian Schmidt & Paul Francis); Engaging India (McComas Taylor & Peter Friedlander)
- Completion rates of MOOCs? 10%
- University of Melbourne – first MOOCs 2013 via Coursera - 7 courses with 348 000 students. “Exhilarating experience” (Glyn Davis)
- 2014 courses - 67 000 students so far
- VC Glyn Davis – lecture theatres being removed in favour of other spaces that emphasise interactivity
- Davis: Books are “a complete waste of space” in today’s university libraries. The uni is refocussing the spaces to spur interaction among students.

http://www.cio.com.au/article/536976/universities_shed_books_lecture_halls/

<http://www.canberratimes.com.au/act-news/thousands-sign-up-for-anu-online-moocs-20140216-32u81.html>

http://m.afr.com/p/national/education/university_of_melbourne_vic_pleased_1AdKb71GO4tSpHEv5iMI6N

Finding MOOCs

- MOOC List - MOOC aggregator: <http://www.mooc-list.com/>
- MOOCs Directory : <http://www.moocs.co/>
- 50 top sources of free eLearning courses:
<http://www.teachthought.com/learning/50-top-sources-of-free-elearning-courses/>
- Coursera - 80 top units: <https://www.coursera.org/>
- edX - courses from Harvard, MIT, Berkeley, ANU. Uni of Qld etc:
<https://www.edx.org/>
- MOOEC (Massive Open Online English Course) – Aust. site, supported by Qld Govt. Teaches English language at all levels:
<http://www.mooec.com/about>



Facebook as a MOOC

- Aug 2013: Facebook formed Internet.org, along with 6 mobile phone companies including Samsung, Ericsson & Nokia.
- Aim: To bring more people online globally and to develop global initiatives.
- 24 Feb 2014: Pilot program in Rwanda announced at Mobile World Congress.
- Facebook will develop SocialEDU – an online educational ecosystem for Rwanda.
- FB will develop an app with edX for students to use .
- Nokia will provide affordable smartphones.
- Airtel will provide free data to students for a year.
- Rwandan government will give free financial aid to students (for phones) and free wifi to unis.



http://motherboard.vice.com/read/facebook-is-bringing-moocs-and-facebook-to-rwanda?trk_source=features3

Smarter with social media?

- Social networking teaches us how to copy but not how to think.
- Users of Facebook & Twitter copy useful information from their friends but don't use analytical thought to arrive at the information independently.
- While we may know more through social learning, any increase in intelligence is superficial because we are thinking less to arrive at our conclusions.
- People are unwilling to reflect more because it takes time & effort.

Study by the Masdar Institute of Science & Technology, Abu Dhabi and the University of Edinburgh.

<http://www.businessinsider.com.au/scientists-now-say-social-media-is-making-us-smarter-but-only-in-a-very-superficial-way-2014-2>



Google – Project Tango

- New research project aimed at bringing 3D technology to smartphones
- Involves robotics and vision-processing technology “to give mobile devices a human-scale understanding of space and motion”
- Smartphones have sensors that make 1.4 million measurements per second and combine data into a 3D model
- Uses – indoor mapping, gaming, helping blind people to navigate
- Capture your home dimensions by walking around with your phone and then going furniture shopping
- Get directions to a new location beyond the street address and inside a building
- Visually impaired could navigate unassisted in unfamiliar indoor places



<http://www.google.com/atap/projecttango/>

iTunes Radio

- Launched here in Feb 2014
- Free (short ad every 15 mins)
- Available via computers and mobile devices running iTunes
- Users can't choose an album and listen from start to finish – stations offer a mix of songs that complement a track, artist or genre
- Featured stations also offered – new music, chart-toppers, genres, themes etc



Wikipedia's editing bots

- Maintaining Wikipedia data is difficult – many repetitive tasks eg. formatting links, adding basic facts
- Much of this work is automated by bots that scan pages, continually polishing the content
- First Wikipedia bot developed 2002 – automatically created entries for US towns using a simple text template
- How much bot activity is there compared to human activity?
- Thomas Steiner – app that monitors editing across the 287 language versions of Wikipedia
- Results are published in real time online – anyone can see how many bots and humans are editing
- Wikipedia & Wikidata realtime edit stats: <http://wikipedia-edits.herokuapp.com/>

<http://www.technologyreview.com/view/524751/the-shadowy-world-of-wikipedias-editing-bots/>



Australian Curriculum: ICT capability

- “In the Australian Curriculum, students develop ICT capability as they learn to use ICT effectively and appropriately to access, create and communicate information and ideas, solve problems and work collaboratively in all learning areas at school, and in their lives beyond school. The capability involves students in learning to make the most of the digital technologies available to them, adapting to new ways of doing things as technologies evolve and limiting the risks to themselves and others in a digital environment.”

<http://www.australiancurriculum.edu.au/GeneralCapabilities/Pdf/ICT>



Australian Curriculum: Technologies

- Available for use; awaiting final endorsement.
- 2 distinct subjects - all students will study both from Foundation to Year 8. In Year 9 and 10, access will be determined by school authorities.
- **Design and Technologies** - students use design thinking and technologies to generate and produce designed solutions for authentic needs and opportunities.
<http://www.australiancurriculum.edu.au/technologies/design-and-technologies/Curriculum/F-10>
- **Digital Technologies** - students use computational thinking and information systems to define, design and implement digital solutions.
<http://www.australiancurriculum.edu.au/technologies/digital-technologies/Curriculum/F-10>
- Interesting article by Deborah Trevallion. If ICT capability is integrated into every subject, why do we need a Digital Technologies syllabus? Who is going to teach it? The Australian syllabus is already overcrowded.

<http://theconversation.com/connecting-to-australias-first-digital-technology-curriculum-23507>

Google Apps for Education (GAFE)



- 2013 - NSW Dept of Education & Communities – partnership with Google to access GAFE
- 2012 – NSW Catholic schools sign up for GAFE
- Education Queensland is avoiding using the cloud & GAFE
- Sept 2013 – Sweden’s Data Inspection Board refused to allow the use of GAFE in some schools until Google signed a privacy agreement. They had used GAFE since 2010, switching from Microsoft Office & saving \$\$\$

Molloy, Fran 2014, “Still a bit cloudy”, *Education Review*, February, p.40.

Benefits of GAFE:

- Free with no ads
- Spam & viruses are filtered
- Students & schools own their own data
- User info cannot be transferred, used or sold by Google
- Students & teachers can work seamlessly at school , home & elsewhere
- Data can be easily shared with other students and the teacher & students can work collaboratively

Risks:

- Data hacking

ICT in Aust. schools

Matthew Flinders Anglican College, Qld
– Paul Hamilton:

- Uses augmented reality (AR) via **Ausrasma** app to help students understand key maths concepts – an engaging format that connects real life objects to real life maths concepts
- **Explain Everything** app used to create tutorials about maths concepts
- Hamilton wants to see personalisation through technology, to create individual pathways & for students to receive formative feedback.

Howarth, S. 2013, “Education tech hits & hopes”, *Technology in Education*, term 4, p.38.

Royal Children’s Hospital Education Institute – Lauren Sayer:

- Uses **Verso** app – it performs the entire Flip process. Teachers create, curate & assign challenges drawn from their YouTube channels in Google Drive or created on mobile devices.
- Students provide lesson-changing feedback to the teacher via Verso; the teacher adds comments & sees the ideas & needs of the students
- Sayer wants teachers to embrace mobile technology as a means to listening & responding to students. It gives students a voice, makes learning visible & blurs the distinction between formal & non-formal learning.

www.flipyourthinking.net/verso-app

Aurasma augmented reality app



ICT in global schools

Africa:

- A large percentage of the population have mobile phones – raising hopes of a higher education revolution as students who live in distant locations can access courses remotely.
- However, only 6% to 15% of all phones are smartphones.
- Mobile learning can potentially make a significant contribution to education in Africa.

<http://www.timeshighereducation.co.uk/features/africas-mobile-phone-e-learning-transformation/2007120.article>



Asia:

- Teachers are embracing new technologies with 80% using laptops in class.
- One third of teachers use smartphones & tablets in class.
- 75% of teachers are at a BYOD school.

Malaysia

- Rolling out Chromebooks & Google Apps for Education (GAPE) in 10 000 public schools.

The Netherlands

- Tablets have replaced teachers & textbooks in 7 “digital schools”, with more planned.

Wheeler, M. 2013, “Digital world”, *Technology in education*, term 4, p. 40.

Seamless learning

- Smooth integration of formal and informal study that happens across different places
 - Linked to widespread use of mobile devices
 - Learning wherever, whenever, whatever
 - Seamless learning de-emphasises the borders between learning points – as students move through different spaces they continue to build on their learning experiences
- Mike Keppell (USC Qld)

Molloy, Fran 2014, "Smooth moves", *Education Review*, February, p.39.



Google's 80/20 principle for students

- For 20% of their week students work on projects that interest them
 - A.k.a as 20% time or Genius Hour
 - Time for students to explore their passions & things that intrigue them – they are in charge of their learning
 - Encourages engagement, self-motivation, freedom, ownership, entrepreneurial skills, creativity and collaboration
- Arlington HS, New York – Julie Jee, English teacher
 - Students chose a book, created an essential question generated from the reading & started a project that inspired them.
 - 2 student musicians: “Is it a moral obligation for an individual to help others in society?” They put together a benefit concert for suicide awareness.



<http://www.centerdigitaltd.com/news/Googles-8020-Principle-Students.html>

Code.org and the Hour of Code

- Launched by nonprofit Code.org who aim to bring computer science education to all students
- 4.9 million students in 168 countries participated 9-15 Dec 2013

<http://www.centerdigitaled.com/news/Hour-of-Code-Takes-off-in-Schools.html>

- Teacher coding & professional resources:

<http://code.org/learn>

<http://code.org/educate>

- Chicago public schools establishing computer science as core subject in high schools, in partnership with Code.org, who will provide free curriculum and PD for teachers

http://www.centerdigitaled.com/news/Chicago-Public-Schools-to-Establish-Computer-Science-as-Core-Subject-.html?utm_source=related&utm_medium=direct&utm_campaign=Chicago-Public-Schools-to-Establish-Computer-Science-as-Core-Subject-



Good films

- Academy Award Best picture:
12 years a slave



Nominated:

- **Her**
- **Gravity**
- **Captain Phillips**

<http://oscar.go.com/nominees> - and winners 3/3/14

Other upcoming films:

- **Divergent**
- **The fault in our stars**
- **The giver**
- **X-Men: days of future past**
- **Pompeii**
- **Noah**
- **Secret River** miniseries (ABC)



Good books

- The fault in our stars – John Green
- Code name Verity – Elizabeth Wein
- Rose under fire – Elizabeth Wein
- The bone season – Samantha Shannon (7 book series paranormal fiction)
- Trash – Andy Mulligan

